

## Attachment 2

### Chlorination Calculation Procedures

Chlorination Formula for injecting into a pipe line.

(Gallons / Million Gallons) X 8.34 lbs/gal x 50 ppm / percent solution = lbs of Cl<sub>2</sub>.

Example:

2000 gal/1000000 gal x 8.34 x 50 ppm = .834 lbs / 12 Cl<sub>2</sub>% = 6.95 lbs

1 gallon of 12% sodium hypochlorite solution weighs 8.34 lbs

So for 2000 gallons of water needing 6.95 lbs of 12% solution you divide the lbs of solution by lbs per gallon to come up with total gallons of liquid chlorine you need.

Example 6.95 / 8.34 = .83 gal of 12% solution.

Diameter	Gals water per Ft of pipe	lbs/cl <sub>2</sub> per 100'
4	0.7	0.23
6	1.5	0.51
8	2.6	0.91
10	4.1	1.42
12	5.9	2.04

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Flow calculation formula:

City opens isolation valve to obtain 30 GPM.

Contractor supplies a 35 gallon new or newly lined vessel.

Contractor marks and measures flow at end of line with vessel until City adjusts isolation valve to flow 30 GPM.

Contractor supplies and connects a 3GPM pump to the injection point.

Contractor mixes and pumps solution into line while flowing 30 GPM until proper concentration is confirmed by the City at the end of line.

Each 32 gallon batch requires 11 cups of 5% chlorine.

OR

Each 32 gallon batch requires 4.5 cups of 12.5% chlorine.

City bleeds services and hydrants while flowing solution to obtain required concentration.

Finish (option 2) process from number 6 on.

### **CHLORINATION PROCEDURES (5 OF 5)**

STANDARD PLAN:  
**W - 654**

DATE: **FEB. 2007**

CITY ENGINEER APPROVAL:

Longview: **C.B.**

Kelso: **S.Z.**